

ABSTRACT OF THE DISCLOSURE

A method of learning user query concept for searching visual images encoded in computer readable storage media comprising: providing a multiplicity of respective sample images encoded in a computer readable medium; providing a multiplicity of respective sample expressions encoded in computer readable medium that respectively correspond to respective sample images and in which respective terms of such respective sample expressions represent respective features of corresponding sample images; defining a user query concept sample space bounded by a boundary k-CNF expression which designates a more specific concept within the user query concept sample space and by a boundary k-DNF expression which designates a more general concept within the user query concept sample space; refining the user query concept sample space by, selecting multiple sample images from within the user query concept sample space; presenting the multiple selected sample images to the user; soliciting user feedback as to which of the multiple presented sample images are close to the user's query concept; wherein refining the user query concept sample space further includes, refining the boundary k-CNF expression by, identifying respective terms of respective sample expressions that contradict corresponding respective disjunctive terms of the boundary k-CNF expression for those respective sample expressions corresponding to respective sample images indicated by the user as close to the user's query concept; determining which, if any, respective disjunctive terms of the boundary k-CNF expression identified as contradicting corresponding respective terms of sample expressions indicated by the user as close to the user's query concept to remove from the boundary k-CNF expression; removing from the boundary k-CNF expression respective disjunctive terms determined to be removed; wherein refining the user query concept sample space further includes, refining the boundary k-DNF expression by, identifying respective terms of respective sample expressions that do not contradict corresponding respective conjunctive terms of

the boundary k-DNF expression for those respective sample expressions corresponding to respective sample images indicated by the user as not close to the user's query concept; determining which, if any, respective conjunctive terms of the boundary k-DNF expression identified as not contradicting corresponding respective terms of sample expressions indicated by the user as not close to the user's query concept to remove from the boundary k-DNF expression; and removing from the boundary k-DNF expression respective conjunctive terms determined to be removed.